

carbon dioxide narcosis and respiratory acidosis. With experience, tissue injury and major hemorrhage are rare. Many of the complications seen in adult laparoscopic procedures result from the use of lasers or monopolar electrocautery. As safer bipolar instruments are introduced, the incidence of these types of injuries will decline.

Whether a surgeon chooses to do a procedure laparoscopically depends to a large extent on experience, training, and the long-term outcome of some of the procedures. For example, the incidence for the recurrence of inguinal hernia and gastroesophageal reflux following fundoplication could be greater than that from conventional repair.

Thus far, the results of laparoscopic operations in children are encouraging. As the instrumentation improves, surgeons will gain experience with more complicated reconstructive procedures. Laparoscopic surgery will be applied more frequently in children and in many cases will obviate a more extensive surgical procedure and prolonged hospital stay.

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## Depot Levonorgestrel (Norplant) Use in Teenagers

NORPLANT (long-acting depot levonorgestrel) is well established as a contraceptive for women. It is especially well suited for women who wish long-term contraception, substantial birth spacing, a method independent of self- or partner participation (compliance) or timing of coitus, and avoidance of other contraceptives that have caused important side effects (such as intrauterine devices or estrogen).

Although there is no published information on the use of Norplant in teenagers, an adolescent service has used it in hundreds of teenagers.

Norplant consists of six flexible silastic capsules containing the hormone levonorgestrel. These capsules are inserted subdermally into the underside of a woman's upper arm through a surgical incision, usually in an outpatient setting. Norplant inhibits ovulation and thickens cervical mucus, thus making it impenetrable to sperm.

Levonorgestrel has been used widely in both progestin-only and in combined oral contraceptive pills. Now with the delivery method changing from oral to implantable, Norplant has become the most effective, reversible, long-term contraceptive available. It does not rely on patient compliance and therefore virtually eliminates all pregnancies for five years. Every year, one of every ten teenaged girls between ages 15 and 19 becomes pregnant, resulting in more than a million pregnancies in this age group in 1990 alone. Thus, based on the high number of unintended teenaged pregnancies in the United States, many of which are due to a lack of compliance, Norplant may prove to be the ideal contraceptive for some teens.

Norplant is by no means a panacea. Eight of ten women using Norplant report heavy, irregular bleeding. This common side effect is the primary reason for discontinuing its use. In addition, public health concerns have surfaced regarding the potential for a decrease in the use of condoms with Norplant and thus an increase in the risk of sexually transmitted diseases, including human immunodeficiency virus infection and hepatitis B.

Ethical issues have been expressed regarding Norplant's possible use in a coercive manner by parents or health care professionals or by its use in "targeted groups." Health care professionals must be vigilant to make sure this does not occur. Norplant is but another contraceptive choice and should be offered to teenagers as one of many options available to them. The final choice must be their own.

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